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DIRECTORATE OF  
INTELLIGENCE

**Industrial Facilities  
(Non-Military)**

*Basic Imagery Interpretation Report*

**Lin-hsiang Petroleum Refinery and Storage NW**

**Lin-hsiang, China**



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RCS 13/0009/73  
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DATE JANUARY 1973  
COPY 119  
PAGES 9

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25X1CENTRAL INTELLIGENCE AGENCY  
Directorate of Intelligence  
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME

COUNTRY

Lin-hsiang Petroleum Refinery and Storage NW

CH

UTM COORDINATES

GEOGRAPHIC COORDINATES

NA

29-31-50N 113-21-15E

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MAP REFERENCE

15th RTS. USATC, Series 200, Sheet 0494-20AL, 1st ed, Oct 60, Scale 1:200,000  
(SECRET)

LATEST IMAGERY USED

NEGATION DATE (If required)

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## ABSTRACT

Lin-hsiang Petroleum Refinery and Storage NW is the first refinery in China built at a regional petroleum storage site. This site now appears to serve only as a storage area for the refinery. The products of the refinery include straight-run, cracked, reformed, and blended gasolines in a wide range of octane ratings, kerosene, diesel and fuel oils, petroleum coke, gaseous hydrocarbons, and possibly benzene, toluene, and xylene. The main processing units are a crude oil distillation unit, a catalytic cracking unit, a delayed coking unit, and a catalytic reforming-hydrotreating unit. Associated with the refinery are a petrochemical plant under construction and a transshipment area on the Yangtze River.

Site preparation for the refinery was observed in July 1969. By October 1969 the crude oil distillation unit was under construction. The refinery was first seen operating in February 1972 and it was operating on the most recent coverage in July 1972.

This report includes two photographs, a line drawing of the refinery, a list of functional areas with measurements of storage tanks, and a discussion of the status of facilities.

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**INTRODUCTION**

Lin-hsiang Petroleum Refinery and Storage NW is located 6 nautical miles (nm) west-northwest of Lin-hsiang and 80 nm south-southwest of Wu-han, Hunan Province (see Figure 1). It is located at the previously existing Lin-hsiang Regional Petroleum Storage Site NW and is the first refinery in China built at one of these regional storage sites. This site now appears to serve as a storage area for the refinery and not as part of the regional petroleum storage system.

Crude oil to charge the refinery probably comes from the Chien-chiang Oilfield [ ] located 70 nm to the northwest, which is the only known source of crude oil in this part of China. Rail service to the refinery is provided by a spur from the line between Wu-han and Yueh-yang. Electric power and steam are produced at a heat and thermal power plant collocated with the refinery.

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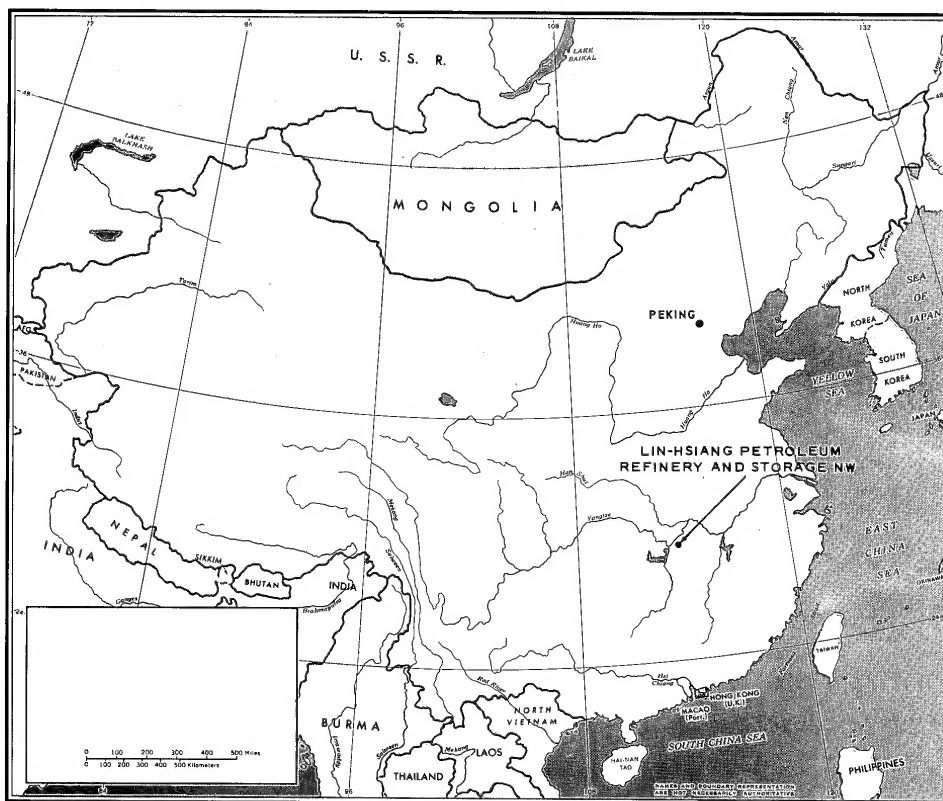


FIGURE 1. LOCATION MAP.

**BASIC DESCRIPTION**

The refinery and its associated facilities (excluding the large housing, support, and storage area) occupy about 475 acres. However, only about 20 acres are occupied by processing equipment. A large portion of the plant area is unused and possibly is unusable due to the terrain. No security fences have been observed, but the hilly terrain provides some natural protection.

The Yun-chi Petrochemical Plant [ ] is in the midst of construction 4.5 nm southwest of the refinery. It is connected to the refinery by a pipeline which will carry feedstocks to the petrochemical plant (see Figure 2). A transshipment area on the Yangtze River is connected by pipelines to one of the refinery storage areas (Area L) and to the refinery. The transshipment area contains four wharves, 13 semiburied storage tanks (two of them under construction), a small heat and thermal power plant, and a small water treatment plant.

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Operational Functions

The main processing units at the refinery are a crude oil distillation unit, a catalytic cracking unit, a delayed coking unit, and a catalytic reforming-hydrotreating unit (see Figures 3 and 4). Several small unidentified processing units are also present, but they are located outside the refining area and do not appear to be significant.

The main product of the refinery is straight-run, cracked, reformed, and blended gasolines in a wide range of octane ratings. Other products include kerosene, diesel and fuel oils, petroleum coke, and gaseous hydrocarbons. The quality of some of the products (probably diesel and fuel oils) is improved by hydrotreating. It is possible that benzene, toluene, and xylene are separated from the reformed gasoline.

Construction and Operational Status

Site preparation for the refinery was observed on photography of July 1969. Construction on the crude oil distillation unit was observed in October 1969. Due to the lack of photography between December 1969 and March 1971, it cannot be determined when construction began on the delayed coking unit, the catalytic cracking unit, or the catalytic reforming-hydrotreating unit.

The refinery was first seen operating in February 1972 and it was operating on the most recent coverage in July 1972.

No additional construction on processing units was observed on the most recent photography.

The construction chronology for the refinery is shown in Figure 5.

Functional Description

Table 1 lists the functional areas within the refinery and contains measurements of storage tanks in the storage areas. All measurements are rounded to the nearest 5 feet.

Table 1. Facilities at Lin-hsiang Petroleum Refinery and Storage NW (Keyed to Figure 3).

<u>Area</u>	<u>Functional Description</u>	<u>Remarks</u>
A	Storage and Shipping	This was originally the trans-shipment area of Lin-hsiang Regional Petroleum Storage Site. It was expanded and storage tanks were added when construction began on the refinery. Area contains 17 cylindrical storage tanks (12 are semiburied) 2 60-foot-diameter 2 45-foot-diameter 2 40-foot-diameter 1 35-foot-diameter 6 30-foot-diameter 4 25-foot-diameter
B	Storage	This was the storage area of Lin-hsiang Regional Petroleum Storage Site. It contains 30 semiburied storage tanks (not measured).

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<u>Area</u>	<u>Functional Description</u>	<u>Remarks</u>
C	Storage, Support, and Miscellaneous U/I Processing	Area contains 6 cylindrical storage tanks 4 30-foot-diameter 2 10-foot-diameter
D	Support	
E	Catalytic Reforming-Hydrotreating	This unit contains more columns than are necessary for reforming and hydrotreating. Therefore, some aromatics (BTX) separation may also occur in this unit.
F	Storage	Area contains 14 cylindrical storage tanks 3 70-foot-diameter 4 45-foot-diameter 1 40-foot-diameter 6 35-foot-diameter An additional 115-foot-diameter storage tank is under construction.
G	Delayed Coking	The unit has 4 coking drums.
H	Support and Water Cooling	
I	Crude Oil Distillation	This is the standard type crude oil distillation unit being constructed in new Chinese refineries. It has one atmospheric and one vacuum distillation section. Area contains 3 cylindrical storage tanks 2 115-foot-diameter 1 45-foot-diameter
J	Catalytic Cracking	This is the standard catalytic cracking unit being constructed in new Chinese refineries and being added to older refineries. It has an associated vapor recovery section.
K	Storage	Area contains 6 cylindrical storage tanks 3 75-foot-diameter 2 50-foot-diameter 1 30-foot-diameter Two additional cylindrical storage tanks are under construction (not measured).
L	Storage	Area contains 15 semiburied storage tanks, 110 feet in diameter, which are connected by pipeline to the transshipment area on the Yangtze River and to the refinery. They could be used for storage of crude oil or products.

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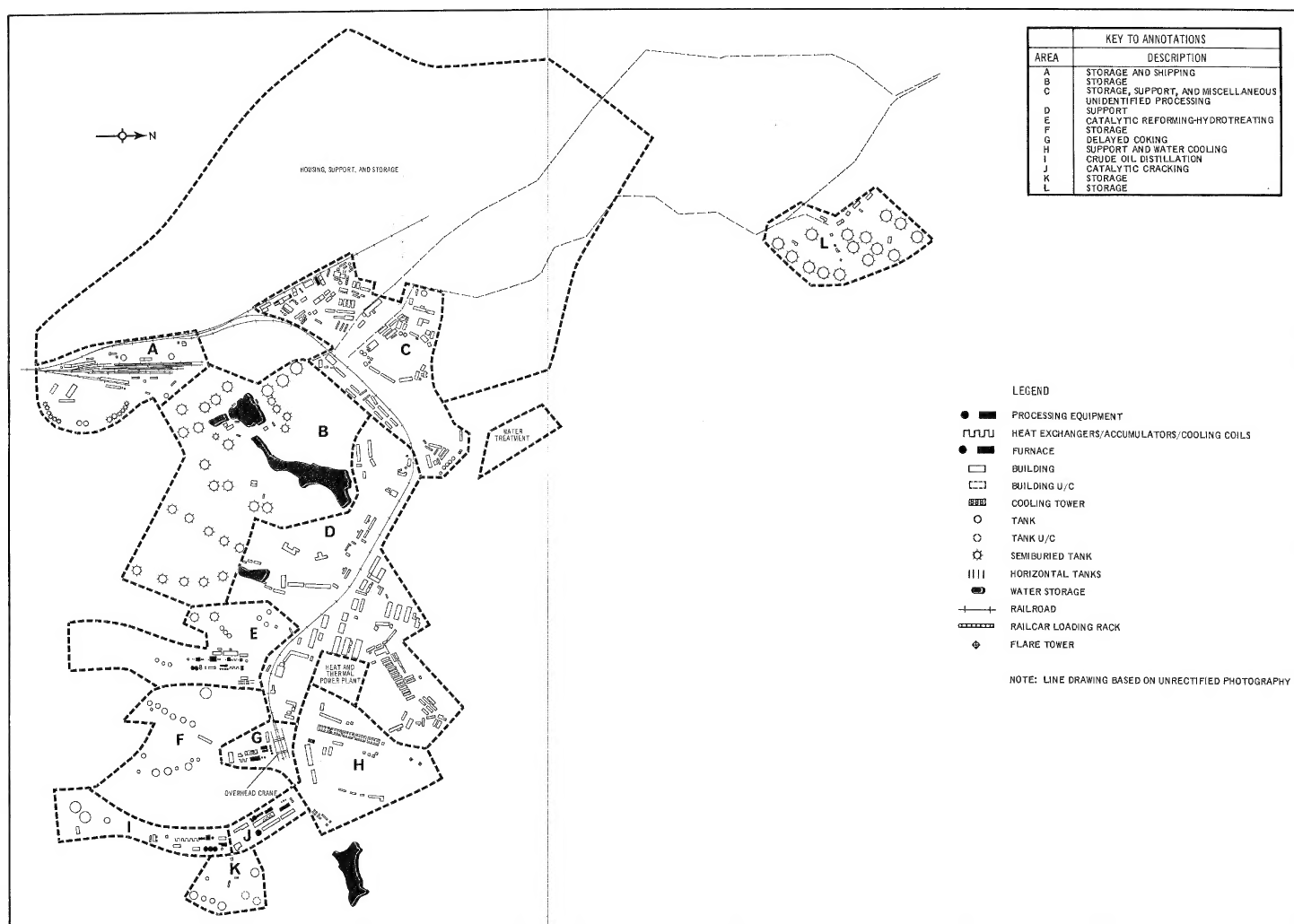


FIGURE 4. LIN-HSIANG PETROLEUM REFINERY AND STORAGE NW, CHINA.

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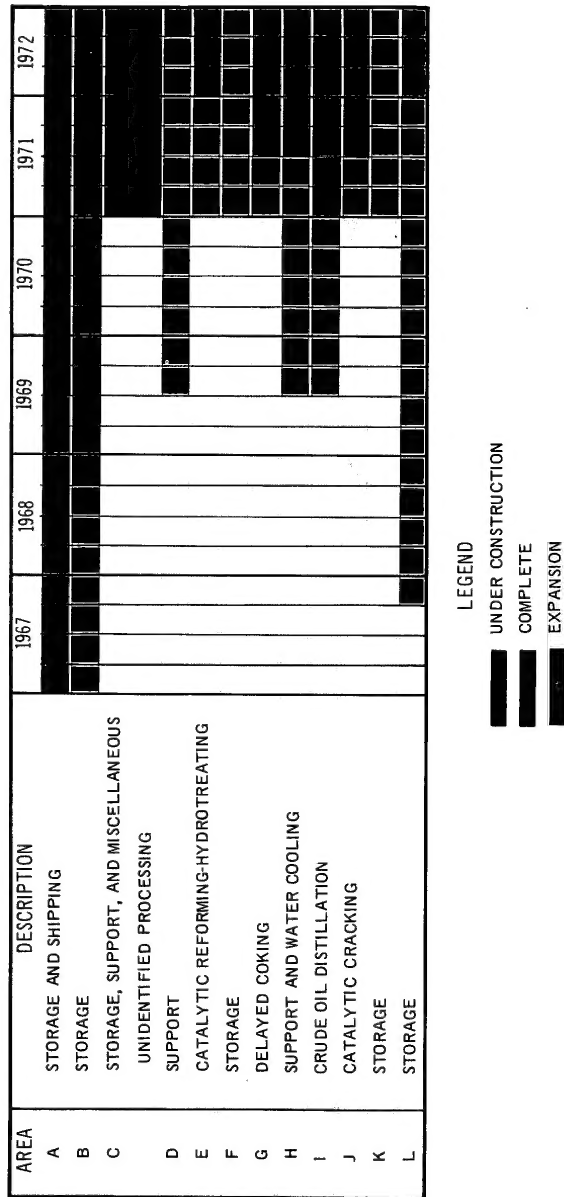


FIGURE 5. CONSTRUCTION CHRONOLOGY, LIN-HSIANG PETROLEUM REFINERY AND STORAGE NW, CHINA.

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REFERENCES

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Map

15th RTS. US Air Target Chart, Series 200, Sheet 0494-20AL, 1st edition,  
October 1960, Scale 1:200,000 (SECRET)

Requirement

COMIREX N06  
Support Number 423838

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